Name: **Key**   Date: _____ HR: _____

Pythagorean, Distance and Midpoint Review

Find x.

1)

16

x

33

$$X = \sqrt{1345}$$

2)

$\frac{4}{9}$

x

$\frac{5}{9}$
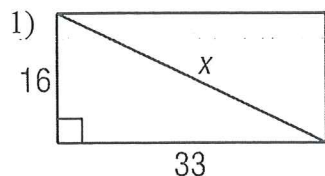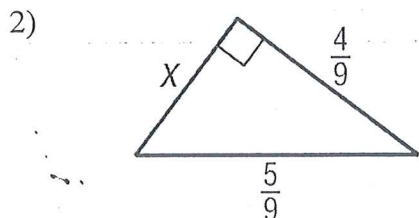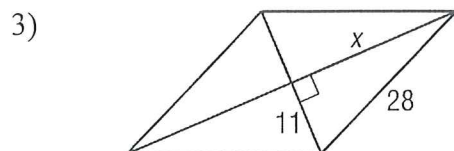
$$x^2 + \left(\frac{4}{9}\right)^2 = \left(\frac{5}{9}\right)^2$$

$$x^2 = \frac{9}{81}$$

$$X = \frac{3}{9}$$

$$X = \frac{1}{3}$$

3)

x

28

11

$$X = \sqrt{663}$$

Directions: Use the Pythagorean Theorem or Distance Formula to find the distance of each segment, and then find the midpoint of each segment. You must simplify radicals and fractions!!!!

-2   -3

4) G(2,6), H(-1,4)

Distance: __$\sqrt{13}$__

Midpoint: __$\left(\frac{1}{2}, 5\right)$__

Slope: __$\frac{2}{3}$__

Directions: M is the midpoint of $\overline{XY}$. Find the missing endpoint's coordinates based on the given information. *Must show all work*
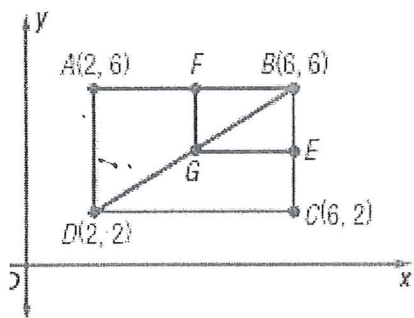
5) M(2,3), X(-1,5) Find Y(x,y)

$$\left(\frac{-1+x}{2}, \frac{5+y}{2}\right) = (2,3)$$

Y(5,1)

6) M(3,1), Y(-4,7) Find X(x,y).

$$\left(\frac{-4+x}{2}, \frac{7+y}{2}\right) = (3,1)$$

X(10,-5)

A(2, 6)   F   B(6, 6)
                        E
        G
D(2, 2)   C(6, 2)

Use figure to the left for 7-9.
In this figure, $\overline{GE}$ bisects $\overline{BC}$ and $\overline{GF}$ bisects $\overline{AB}$. $\overline{FG} \perp \overline{GE}$.

7. Find the coordinates of F, E and G.

F: $(4,6)$

E: $(6,4)$

G: $(4,4)$

8. Find the following lengths by calculating the distance between each endpoint.

AB=__4__   BE=__2__

BC=__4__   BF=__2__

CD=__4__   BG=__$2\sqrt{2}$__

BD=__$4\sqrt{2}$__   DG=__$2\sqrt{2}$__

9. Name conclusions or relationships that you can conclude based on the information you found in #7 and #8. It must be based on what YOU found, NOT what was given to you.

There are a lot of different, correct Answers.